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Claims

1. A method for local measurement of an icing factor for atmospheric air containing supercooled water, the method comprising the following process steps:

wherein at least one surface element (3) is provided that is made of a material suitable for ice in atmospheric air to freeze on, said element having a predetermined surface area;

wherein the surface element(s) is/are brought to a temperature that corresponds essentially to the temperature of the atmospheric air;

wherein a relative movement at a predetermined velocity is subsequently created between the atmospheric air and the surface element(s) by allowing the surface element(s) to move through the atmospheric air, and for a predetermined period of time;

and wherein the thickness or mass of the ice frozen fast to the surface element(s) is subsequently measured by means of a measurement device configured therefore after said predetermined period of time.

2. A method according to claim 1, wherein the ice frozen fast is, following measurement its mass or thickness, removed from the surface element(s), whereupon a renewed measurement process can be performed.

3. A method according to claim 2, wherein the ice frozen fast is removed by heating of the surface element(s).

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4. A method according to any one of the ~~preceding claims, wherein~~ a cover is provided that in a first position ex-

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tends at least across the surface element(s), and covers and shields the surface element(s); and said cover being removed from the surface element(s) at least for the predetermined period of time during which the surface element(s) is/are moved through the atmospheric air at a predetermined rate.

5. A method according to claim 4, wherein the surface element(s) is/are caused to move for a predetermined period of time after the cover has reverted to its first position following a measurement procedure, whereupon the thickness or mass of the ice frozen fast on the surface element(s) is measured.

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6. A method according to any one of the preceding claims, wherein the surface element(s) are caused to move through the atmospheric air at a velocity that ensures that atmospheric precipitation not frozen fast onto the surface element(s) is substantially thrown off the surface element(s).

7. A method according to any one of the preceding claims, wherein at least two surface elements are used that are rotatably arranged on a rotor shaft; and that the movement of the two surface elements is accomplished by a rotation of the rotor shaft.

8. An apparatus for local measurement of an icing factor for atmospheric air containing supercooled water, wherein the apparatus comprises at least a surface element (3) made of a material suitable for ice in atmospheric air to freeze on, wherein the surface element(s) has/have a predetermined surface area, and wherein the apparatus further comprises means (4) configured for moving the surface element(s) through the atmospheric air at a predetermined rate and for a predetermined period of time, and

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wherein further means (5) are provided for measuring the thickness or mass of the ice frozen fast onto the surface element(s) after the predetermined period of time, during which the surface element(s) has/have been moved through the atmospheric air.

9. An apparatus according to claim 8, comprising a weighing device (5) configured for weighing and recording at least the weight of the surface element(s) before and after the surface element(s) is/are caused to move through the atmospheric air.

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10. An apparatus according to claim 8 or 9, comprising means for heating the surface element(s).

11. An apparatus according to any one of claims 8 through 10, wherein the apparatus comprises a rotor element with a rotor shaft (2), and at least two surface elements (3) that extend from the rotor shaft and protrude there from, and wherein means (4) are provided for rotating the rotor abut its axis.

12. An apparatus according to any one of claims 8 through 11, wherein the apparatus comprises a cover (6) whose inside faces towards the surface elements and which is configured for occupying a first position in which it extends across the surface element(s) that is/are hereby covered upwardly, and a second position in which the cover is removed and does not cover the surface element(s).

13. An apparatus according to claim 12, wherein the cover is configured such that it forms, in its first position, a closed space (7) around the surface element(s).

14. An apparatus according to claim 13, wherein means (8,9) are provided for heating the closed space underneath the cover.

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15. An apparatus according to any one of claims 12 through 14, wherein the apparatus is configured for moving the surface element(s) for a predetermined period of time after the cover (6) has, following a measurement procedure, reverted to its first position, whereupon the thickness or mass of ice frozen fast can be determined.

16. An apparatus according to any one of claims 12 through 15, wherein the cover is, in its second position, positioned such that its inside is substantially protected against atmospheric precipitation and consequently remains dry.

17. An apparatus according to any one of claims 8 through 16, wherein the surface element(s) each consists of a plate having a front (13) and a back (14) oriented opposite thereto, and wherein the plate is configured in such a manner that the front of the plate faces in the direction in which the respective surface element is moved through the atmospheric air, and wherein - through the plate - a plurality of passageways (10) extend from the front of the plate to its back such that the atmospheric air is allowed to flow through the passageways from the front of the plate to the back of the plate.

18. An apparatus according to any one of claims 8 through 17, wherein the apparatus comprises a system of surface elements (21,22,23,24) mounted on a rotatable shaft (20) configured for being positioned in an essentially vertical position; and wherein the individual surface elements are configured and arranged such that the individual surface elements, corresponding to their projection on a

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face perpendicular to the rotatable shaft, abuts on or overlaps other surface elements, whereby it is accomplished that there is no space between the individual surface elements when the apparatus is viewed from above, and thus that all atmospheric precipitation falling within the expanse of the apparatus, when the rotatable shaft is positioned vertically, essentially hits the surface elements and is thus able to settle in the form of ice.

19. An apparatus according to claim 18, wherein the surface elements are configured and arranged such that the individual surface elements corresponding to their projection on a face parallel with the rotatable shaft (20) abuts on or overlaps other surface elements, whereby there is no space between the individual surface elements, when the apparatus is viewed from the side, and such that the atmospheric air conveyed across the surface elements in a direction substantially perpendicular to the shaft by a relative movement between the atmospheric air and the surface elements substantially hits a surface element and is thus able to deposit the water contained therein as ice.

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20. An apparatus according to any one of claims 8 through 19, wherein the surface elements are configured with passageways; and that the apparatus comprises means such that air can be conveyed through the passageways.

21. An apparatus according to claim 20, wherein the apparatus comprises means for providing air in the form of either heated air or air essentially with ambient temperature.

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22. An apparatus according to any one of claims 8 through 21, wherein the apparatus is arranged at ground level in

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an airport; and that the apparatus comprises means for recording the measurement results for the thickness or mass of the ice deposited on the surface element(s), and means for visually or auditively emitting a signal to the monitoring personnel about the measurement result.

23. An apparatus according to claim 22, wherein the apparatus comprises means for converting the thickness or mass measured into a value that will be indicative of a risk of icing.